

## PATENT CLAIMS

1. A process for pressure welding, preferably friction welding or Magnetarc welding of workpieces (2, 3), characterized in that

the actual length of one or both of said workpieces (2, 3) and a possible length deviation  $\Delta l$  from a set value is measured and that the set value of at least one process parameter, especially the friction length, the friction duration, the arc time or the forge force, is changed in case of length deviations, and a correction factor C, by which the length deviation  $\Delta l$  is multiplied, is determined for the change.

2. A process in accordance with claim 1, characterized in that said correction factor C is obtained empirically in test series.

3. A process in accordance with claim 1 or 2, characterized in that said correction factor C is determined in an application-dependent manner.

4. A process in accordance with claim 1, 2 or 3, characterized in that the test series are carried out in an application-specific manner on sample workpieces from the series batch.

5. A process in accordance with one of the above claims, characterized in that the welding quality is taken into account in the determination of said correction factor C.

6. A process in accordance with one of the above claims, characterized in that upper and

lower limits for length deviations  $\Delta l$  and for said corresponding correction factors  $C$  are determined and stored, and said correction factor  $C$  is determined during the welding operation for measured length deviations  $\Delta l$  in this range by interpolation.

7. A process in accordance with one of the above claims, characterized in that a change in friction length,  $\Delta s$ , is calculated as a product of a correction factor  $C_s$  by the length deviations  $\Delta l$  in case of friction welding with friction length control.

8. A process in accordance with one of the above claims, characterized in that a change in friction duration,  $\Delta t$ , is calculated as the product of a correction factor  $C_t$  by the length deviations  $\Delta l$  in case of friction welding with friction duration control.

9. A process in accordance with one of the claims 1 through 5, characterized in that a change in the forge stroke,  $\Delta p$ , is calculated as the product of a correction factor  $C$  by the length deviations  $\Delta$  in case of friction welding with short-time control.

10. A process in accordance with claim 10 [sic - Tr.Ed.], characterized in that the forge force is changed.

11. A process in accordance with one of the above claims, characterized in that the process parameter is changed in terms of its characteristic, with a parameter profile varying in time and/or space.

12. A process in accordance with one of the above claims, characterized in that determined correction values C with reference data for said workpieces (2, 3) are stored in a data bank which can be connected to said pressure welding machine (1).

13. A device for pressure welding, preferably friction welding or Magnetarc welding of said workpieces (2, 3), with a feed unit (7), a control (13) and a measuring means, characterized in that said pressure welding device (1) has a measuring means (12) for determining the actual length of one or both of said workpieces (2, 3) and a length deviation  $\Delta l$ , wherein a set value of at least one process parameter, especially the friction length, the friction duration, the arc time or the forge force, can be changed in said control (13) in case of a length deviation  $\Delta l$ , said control (13) having a computing unit (14) for setting and changing set values, taking a correction factor C for at least one process parameter into account.

14. A device in accordance with claim 13, characterized in that said control (13) is programmable, wherein said computing unit (14) is connected to at least one said memory (15) and has a program for determining, especially interpolating, the correction factor C from stored preset values.